

# Coil Components

SERIES 799 KOIL-KIT™ COIL PACK AND SERIES 79V KOIL-KIT™ COIL PACK WITH ATC VALVE

<b>⚠ WARNING</b>				
<ul style="list-style-type: none"> <li>• Read and understand all instructions before attempting to install any Victaulic products.</li> <li>• Depressurize and drain the piping system before attempting to install, remove, or adjust any Victaulic products.</li> <li>• Wear safety glasses, hardhat, and foot protection during installation.</li> </ul> <p>Failure to follow these instructions could result in serious personal injury and property damage.</p>				

## RECEIVING THE SHIPMENT

Victaulic Coil Components are a pre-packaged and labeled system designed to improve efficiency of hooking up HVAC coils. Upon receipt of the shipment, ensure that the kit is the correct one for the coil being installed. If any components are damaged or missing, contact Victaulic at 1-800-PICK VIC.

### Union Port Fitting with Air Bleed

The Series 78U Union Port Fitting with Air Bleed can accommodate up to a three-size reduction using adapters. The connections can be configured, as listed below:

- Female Thread x Male Thread Union
- Sweat x Male Thread Union
- PermaLynx™ x Male Thread Union

### “Y” Strainer/Ball Valve Combination or “T” Ball Valve

The Series 78Y Strainer/Ball Valve Combination or Series 78T Ball Valve can accommodate up to a two-size reduction from inlet to outlet. The connections can be configured, as listed below:

- Female Thread x Female Thread
- Female Thread x Sweat
- Sweat x Sweat
- Sweat x Female Thread
- PermaLynx x PermaLynx

### Balancing Valve

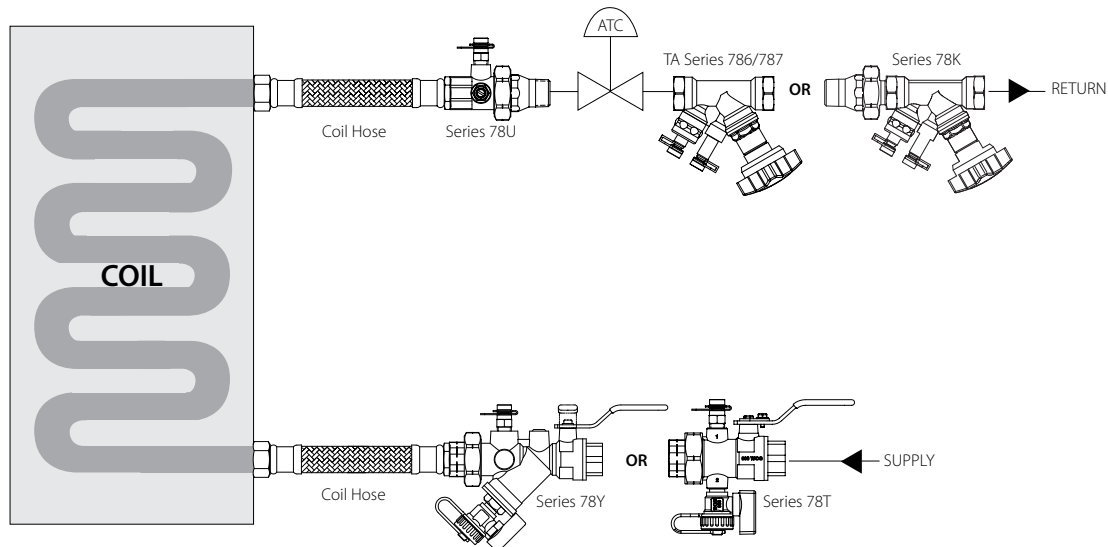
The Series 78K Balancing Valve contains a male threaded union inlet or female threaded union inlet and can expand up to three sizes to a female threaded outlet, PermaLynx outlet, or sweat outlet. As an option to the Series 78K Balancing Valve, a Series 787 Tour and Andersson Balancing Valve with female threaded ends or a Series 786 Tour and Andersson Balancing Valve with sweat ends can be incorporated into the coil hookup.

### Coil Hoses

Coil Hoses are available in 1-foot/0.3-meter, 2-foot/0.6-meter, or 3-foot/0.9-meter lengths for hooking up to the inlet and outlet of the coil. The hoses are available with the following union ends: male threaded x female threaded swivel or male threaded x male threaded swivel.

<b>NOTICE</b>
<ul style="list-style-type: none"> <li>• When the PermaLynx option is chosen (up to 1½-inch/41.3-mm in size), the Style 604 Male Thread x PermaLynx Adapter is factory-assembled to the Series 78K Balancing Valve. Always refer to the I-PermaLynx instructions for complete installation requirements.</li> <li>• The maximum pressure rating for PermaLynx products is 200 psi/14 Bar.</li> </ul>

## EXAMPLE COIL COMPONENT ASSEMBLY DRAWING



## Coil Components

### SERIES 799 KOIL-KIT™ COIL PACK AND SERIES 79V KOIL-KIT™ COIL PACK WITH ATC VALVE

#### IMPORTANT INFORMATION - SWEAT CONNECTIONS

Sweat connections must be soft soldered with 95/5 (95% tin, 5% antimony) type solder. When soldering, the valve body must be heat sunk with a wet cloth or putty at the closest solder connection to protect internal components, and the flame must be directed away from the center of the valve body. DO NOT exceed the temperature rating of the valve (250°F/121°C). Make sure all valves are installed in the correct direction of flow (refer to flow direction arrow on the valve body). Ball valves must be in the fully closed position before attempting to solder the ends. Balancing valves must be in the fully open (4.0) position before attempting to solder the ends. All valves must be allowed to cool down to room temperature before attempting operation.

When sweating/soldering near PermaLynx products, use a wet towel to cover the fitting plus 3 inches/76 mm of the tube closest to the sweat/solder point. The flame MUST be kept a minimum of 6 inches/152 mm away from the product. Heat damage to the rubber seals in PermaLynx products will cause leaks. Refer to the I-PermaLynx installation instructions for complete information.

#### IMPORTANT INFORMATION - THREADED CONNECTIONS

Make sure all threaded connections are clean and free of any burrs. Apply a small amount of pipe joint compound or Teflon\* tape to the external threads of all threaded pipe connections. DO NOT use a combination of tape and pipe joint compound. DO NOT get any tape, pipe joint compound, or other foreign material into the flow path.

#### IMPORTANT INFORMATION - PERMALYNX CONNECTIONS

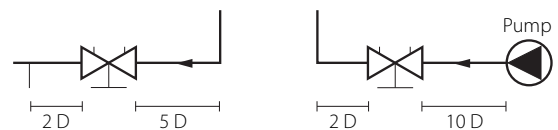
Reference must be made to the I-PermaLynx installation instructions to ensure proper tube preparation and insertion depth requirements are achieved. The I-PermaLynx ships with PermaLynx products and can be downloaded from the [www.victaulic.com](http://www.victaulic.com) website.

#### IMPORTANT INFORMATION - UNION-TYPE ADAPTERS/CONNECTIONS

The o-rings in union-type adapters/connections must be lubricated with Victaulic Lubricant or silicone to prevent the o-ring from pinching or tearing during installation. Tighten union-type adapters/connections hand-tight, then apply an additional quarter turn. DO NOT over-tighten the connection.

#### COIL COMPONENT INSTALLATION

1. Connect the supply side of the Series 78Y Strainer/Ball Valve Combination or Series 78T Ball Valve to the feed pipe via standard threading, sweating, or PermaLynx practices. Refer to the prior sections for important information. Make sure the flow direction arrow on the valve body is facing the direction of flow and that the valve body is rotated to the desired position. **NOTE:** It is not recommended to have the pressure/temperature ports facing straight downward.
2. If using Coil Hoses, make the connection to the coil first. Connect the Coil Hose to the Series 78Y or Series 78T outlet union joint. Ensure the o-ring is in place on the Series 78Y or Series 78T body. Apply a thin coat of Victaulic Lubricate or silicone to the o-ring. Refer to the "Coil Hose Installation" section for details on bend radius specifications and other installation requirements.



2D, 5D, or 10D = 2, 5, or 10 pipe diameters

3. Connect the outlet of the balancing valve to the return pipe via standard threading, sweating, or PermaLynx practices. **NOTE:** In order to obtain accurate differential pressure measurements, turbulence must be minimized. Refer to the drawings above for examples of piping configurations.
4. Connect the Coil Hose (if applicable) to the inlet of the Series 78U Union Port Fitting with Air Bleed. **NOTE:** Between the male union outlet of the Series 78U and the inlet of the balancing valve, there is a customer-specified Automatic Temperature Control (ATC) valve. Ensure the ATC valve contains the correct inlet and outlet sizes. Cutout lengths, etc. will need to be determined on a case-by-case basis, depending on the type of ATC valve being installed. Refer to the instructions supplied with the ATC valve for complete installation and maintenance requirements.

\* Teflon is a registered trademark of the DuPont Company

# Coil Components

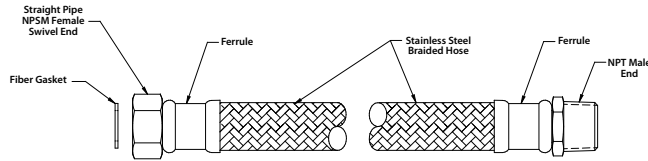
SERIES 799 KOIL-KIT™ COIL PACK AND SERIES 79V KOIL-KIT™ COIL PACK WITH ATC VALVE

## COIL HOSE INSTALLATION

**⚠ CAUTION**

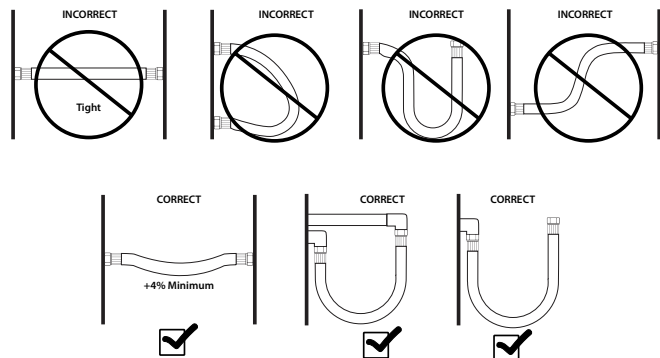
- **DO NOT** introduce chemicals into the system without verifying compatibility with the Coil Hose materials.

Failure to follow this instruction could cause damage to the hose, resulting in property damage.



Size Nominal ID inches	Inlet Options – inches		Bend Radius inches/mm	Maximum Working Pressure psi/Bar
	Male End Thread	NPSM MNPT Swivel Union		
½	x ½ NPT	½	2¾ 67	375 26
¾	x ¾ NPT	¾	4½ 114	300 21
1	x 1 NPT	1	5½ 140	300 21
1¼	x 1¼ NPT	1¼	6¾ 172	225 16
1½	x 1½ NPT	1½	8¾ 213	150 10
2	x 2 NPT	2	11¼ 286	150 10

The minimum temperature rating for Coil Hoses is 5°F/15°C.  
 The maximum temperature rating for Coil Hoses is 230°F/110°C.  
 Coil Hoses are intended for water applications only. DO NOT attempt to use these hoses in gas applications.



Coil Hoses can change in length approximately 4% when pressurized. Allowance must be given to accommodate for this change in length; therefore, Coil Hoses must not be stretched tightly between the coil and mating component. Refer to the drawing above for examples of correct and incorrect bend configurations.

If the bend radius, listed in the table above, falls below the dimension listed for the applicable hose size, an angle adapter must be used to avoid sharp bends. **NOTE:** Exceeding the bend radius can cause reduction in flow and damage to the hose. If Coil Hoses are stored or installed at temperatures of 40°F/4°C or lower, the bend radius should be increased by 50%. Use caution to prevent the hose from collapsing.

The following table contains the minimum distance requirement from each ferrule to the start of the bend. This table must be referenced to prevent the hose from being bent too close to the ferrules.

Size Nominal ID inches	Minimum Distance from Each Ferrule to Start of Bend
	inches/mm
½	1 25
¾	1½ 38
1	2 51
1¼	2½ 64
1½	3 76
2	4 102

To prevent damage to the connections, torque during assembly must not exceed 30 ft-lbs/41 N•m. The wrench must engage only the hex portion of the hose ends.

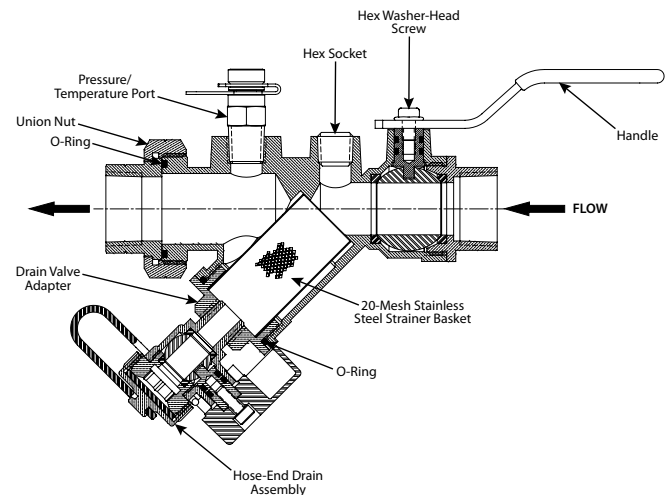
After the system is pressurized, check the Coil Hoses for leaks or discoloration on the stainless steel braided section or connections. If leaks are present, replace the affected Coil Hose(s). DO NOT attempt to repair hoses.

## MAINTENANCE

**⚠ WARNING**

- **Depressurize and drain the piping system before attempting to perform any maintenance on Victaulic products.**

Failure to follow this instruction could result in serious personal injury and/or property damage.



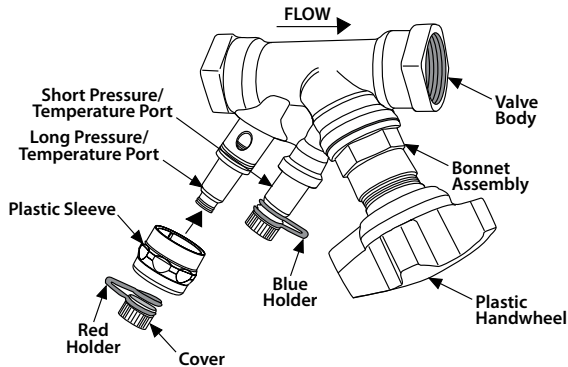
The only maintenance required is for the Series 78Y. A 20-mesh stainless steel strainer basket is included in the valve body and must be inspected and cleaned after system startup and a minimum of every six months thereafter. To access the strainer, remove the drain valve adapter from the valve body. Clean out the strainer basket and replace it into the valve body in the same orientation. If any damage to the strainer basket or o-ring of the drain valve adapter is present, replace them with new, Victaulic-supplied components.

## Coil Components

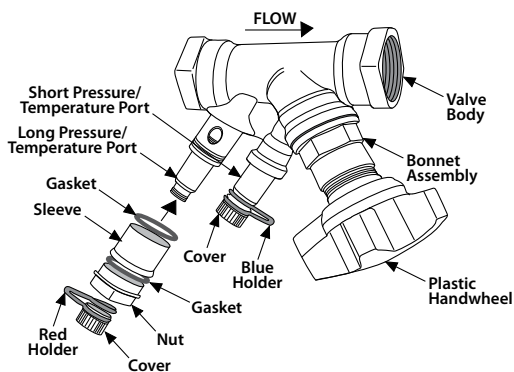
SERIES 799 KOIL-KIT™ COIL PACK AND SERIES 79V KOIL-KIT™ COIL PACK WITH ATC VALVE

### BALANCING VALVE ASSEMBLY DRAWINGS

Newer Design with Plastic Sleeve (Series 787 Shown Below)

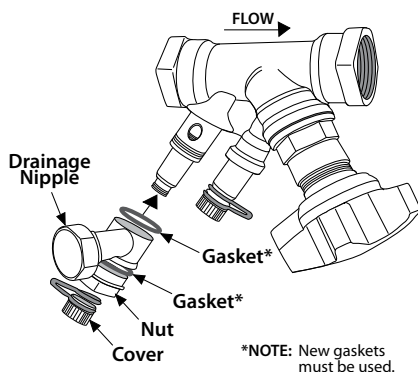


Previous Design with Sleeve and Nut (Series 787 Shown Below)



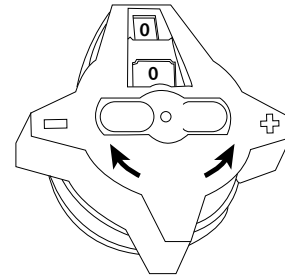
### INSTALLING THE BALANCING VALVE DRAIN KIT

The drain kit (part number K-000-786-CBV) for Series 786, 787, and 78K Balancing Valves is sold separately through Victaulic and comes with two new gaskets, a drainage nipple, and a nut. Contact Victaulic at 1-800-PICK VIC with any order requests or questions regarding this kit.

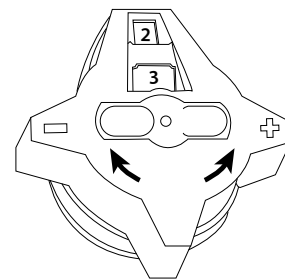


1. Remove the components from the long pressure/temperature port, shown in the assembly drawings above. **NOTE:** The cover with red holder will be re-used when the drain kit is installed.
2. Install the drain kit components, as shown in the drawing above. The new gaskets (provided in the kit) must be installed to prevent leakage from the port. Re-install the cover with red holder onto the nut.
3. Locate the recess under the cover. Insert a 5-mm allen key, and apply 8 - 14 turns to drain from the pressure/temperature port.

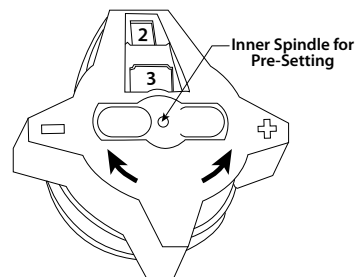
### PRE-SETTING THE BALANCING VALVE



1. To pre-set the balancing valve to a certain pressure drop, turn the plastic handwheel of the bonnet assembly clockwise until the fully closed (0.0) position is reached, as shown above. For this example the pre-setting position of 2.3 will be used.



2. Turn the plastic handwheel of the bonnet assembly counterclockwise 2.3 turns, as shown above.



3. Using the 3-mm allen key (supplied with the balancing valve), turn the inner spindle clockwise until it stops. The balancing valve is now pre-set to the 2.3 position. **NOTE:** Refer to the graph on this page, which shows the pressure drop curves for various settings and flows for each valve size.

### BALANCING AND MEASURING

The Series 737 CBI-II Computerized Balancing Instrument or the Series 73M CMI Pressure Differential Meter should be used to obtain direct readings for temperature, flow, and differential pressures through the balancing valve. Always refer to the operating manual, provided with the measuring instrument, for detailed information.

# Coil Components

SERIES 799 KOIL-KIT™ COIL PACK AND SERIES 79V KOIL-KIT™ COIL PACK WITH ATC VALVE

## PRESSURE DROP GRAPH FOR SERIES 786, 787, AND 78K BALANCING VALVES

This graph shows the pressure drop across the pressure test ports of the balancing valve.

A straight line connecting the bars for flow rate,  $C_v$ , and pressure drop shows the relationship between these variables. The position for each valve size is arrived at by drawing a horizontal line from the  $C_v$  value obtained.

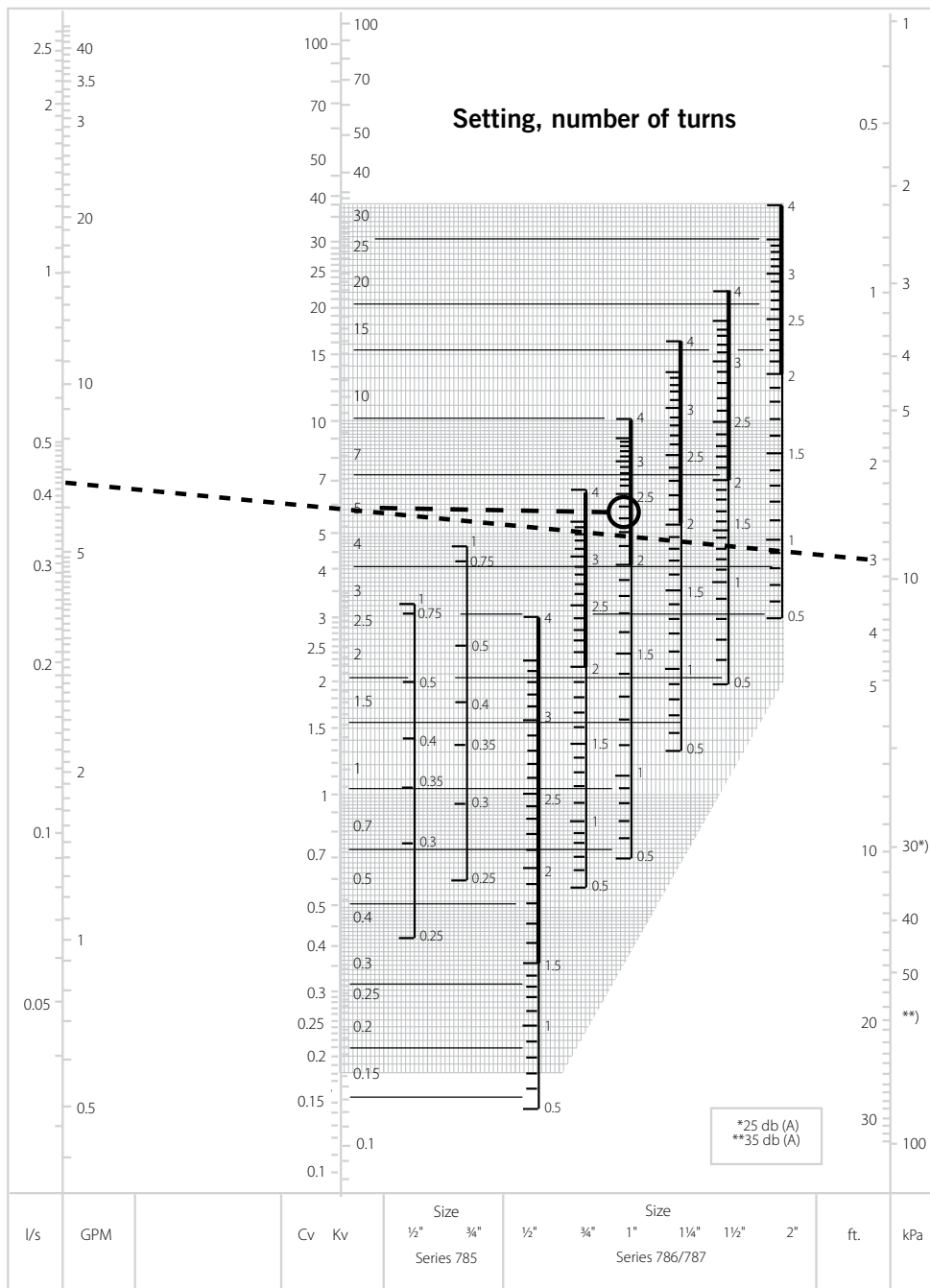
**EXAMPLE:** To pre-set a 1-inch/33.7-mm valve at a desired flow rate of 6.7 GPM and a pressure drop of 3 feet:

Draw a straight line joining 6.7 GPM and 3 feet. The  $C_v = 5.9$ .

Draw a horizontal line from  $C_v$  5.9. This intersects the bar for a 1-inch/33.7-mm valve at the desired pre-setting of 2.35 turns.

**NOTE:** If the flow rate falls outside of the scale in the diagram, the reading can be made as follows:

Starting with the example above (3 feet,  $C_v$  5.9, flow rate 6.7 GPM): At 3 feet and a  $C_v$  of .59, the flow rate = .67 GPM. That is, for a given pressure drop, it is possible to read 10 times or 0.1 times the flow and  $C_v$  values.



## Coil Components

SERIES 799 KOIL-KIT™ COIL PACK AND SERIES 79V KOIL-KIT™ COIL PACK WITH ATC VALVE

### BONNET ASSEMBLY REPAIR KIT FOR SERIES 786, 787, AND 78K BALANCING VALVES

#### WARNING

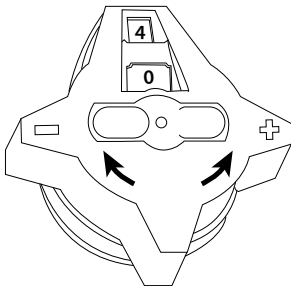
- Depressurize and drain the piping system before attempting to perform any maintenance or install any kits on Victaulic products.

Failure to follow this instruction could result in serious personal injury and/or property damage.

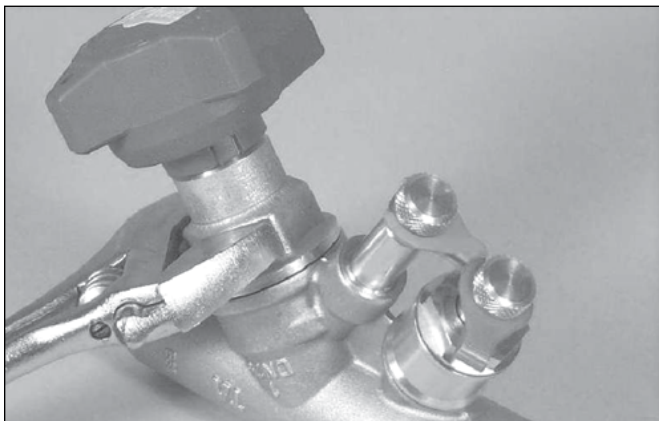
The bonnet assembly repair kit is sold separately through Victaulic. Contact Victaulic at 1-800-PICK VIC with any order requests or questions regarding this kit.



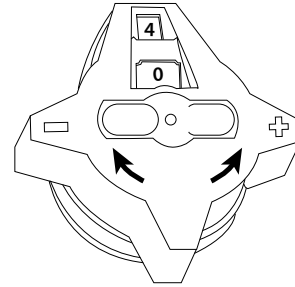
The bonnet assembly repair kit consists of a new bonnet assembly and o-ring for the Series 786, 787, and 78K Balancing Valves in 3/4 - 2-inch/26.9 - 60.3-mm sizes. Contact Victaulic for details.



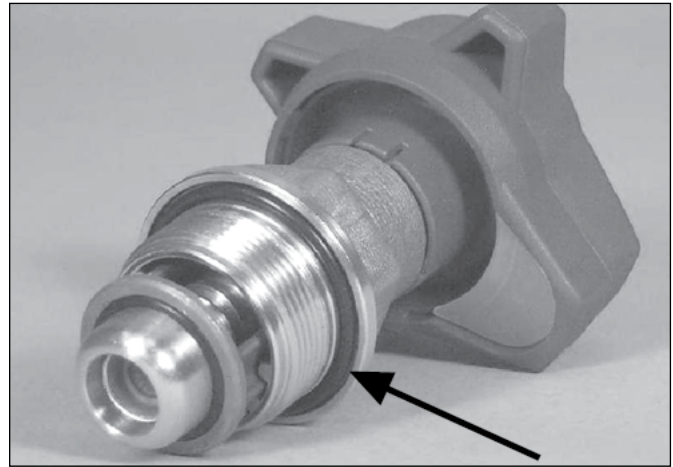
1. Turn the plastic hand wheel of the bonnet assembly counterclockwise until the fully open position (4.0) is reached, as shown above.



2. Remove the bonnet assembly from the balancing valve body.



3. Turn the plastic handwheel of the replacement bonnet assembly counterclockwise until the fully open position (4.0) is reached, as shown above.



4. Apply a very thin layer of Victaulic Lubricant or silicone to the new o-ring.
- 4a. Install the new o-ring over the threads of the bonnet assembly, as shown above. DO NOT use tape or dope on the threads.
5. Tighten the new bonnet assembly into the balancing valve body until metal-to-metal contact is achieved.
6. To pre-set the balancing valve, refer to the "Pre-Setting the Balancing Valve" section.

# Coil Components

SERIES 799 KOIL-KIT™ COIL PACK AND SERIES 79V KOIL-KIT™ COIL PACK WITH ATC VALVE

## ADDITIONAL KIT INFORMATION

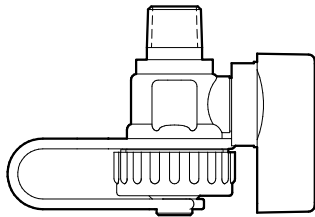
**⚠ WARNING**

- Depressurize and drain the piping system before attempting to perform any maintenance or install any kits on Victaulic products.

**Failure to follow this instruction could result in serious personal injury and/or property damage.**

The following kits are sold separately through Victaulic for Coil Components. Contact Victaulic at 1-800-PICK VIC with any order requests or questions regarding these kits.

**Hose-End Drain Assembly for Series 78Y Strainer/Ball Valve Combination or Series 78T Ball Valve (Part Number P-002-78Y-DRN for ¼-inch NPT or P-004-78Y-DRN for ½-inch NPT)**



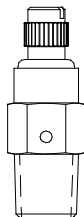
The hose-end drain assembly is field replaceable for the Series 78Y or Series 78T. Remove the existing hose-end drain assembly from the drain valve adapter, and thread the new assembly into the adapter. DO NOT use tape or dope on the threads.

**Replacement Pressure/Temperature Ports for Series 78Y Strainer/Ball Valve Combination, Series 78T Ball Valve, Series 78U Union Port Fitting with Air Bleed, or Series 786/787/78K Balancing Valves (Part Number P-002-78Y-PTP for 78Y/78T/78U or K-000-740-003 for 786/787/78K)**



The pressure/temperature ports are field replaceable. Remove the existing pressure/temperature port(s), and thread the new port(s) into the valve body. DO NOT use tape or dope on the threads.

**Replacement Air Vent for Series 78Y Strainer/Ball Valve Combination and Series 78U Union Port Fitting with Air Bleed (Part Number P-002-78U-MAV)**



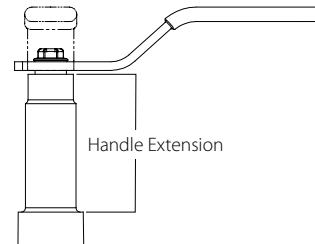
The air vents are field replaceable. Remove the existing air vent, and thread the new air vent into the valve body. DO NOT use tape or dope on the threads.

**Port Extender for Series 78Y Strainer/Ball Valve Combination, Series 78T Ball Valve, or Series 78U Union Port Fitting with Air Bleed (Part Number P-000-78Y-2XT to Clear 2 inches/51-mm of Insulation or P-000-78Y-4XT to Clear 4 inches/102-mm of Insulation)**



In applications where the Coil Components will be insulated, the port extender is available to extend the pressure/temperature ports of the Series 78Y or the air vent of the Series 78U to clear 2 inches/51-mm or 4 inches/102-mm of insulation. Thread the port extender into the existing pressure/temperature ports or the existing air vent. DO NOT use tape or dope on the threads.

**Handle Extension for Series 78Y Strainer/Ball Valve Combination or Series 78T Ball Valve (Refer to Table Below for Part Numbers)**



Size Nominal Diameter inches/mm	Part Code for 2-inch Handle Extension	Part Code for 4-inch Handle Extension
½ - ¾ 15 - 20	P-004-78Y-2HL	P-004-78Y-4HL
1 - 1 ¼ 25 - 32	P-010-78Y-2HL	P-010-78Y-4HL
1 ½ - 2 40 - 50	P-020-78Y-2HL	P-020-78Y-4HL

In applications where the Coil Components will be insulated, the handle extension is available to extend the handle of the Series 78Y to clear 2 inches/51-mm of insulation. Remove the hex washer-head screw from the handle assembly. Remove the handle assembly and install the handle extension. Re-install the handle assembly onto the handle extension by using the hex washer-head screw.

## Coil Components

SERIES 799 KOIL-KIT™ COIL PACK AND SERIES 79V KOIL-KIT™ COIL PACK WITH ATC VALVE

---

---

For complete contact information, visit [www.victaulic.com](http://www.victaulic.com)

I-799/79V 2954 REV C UPDATED 06/2010 Z004799001

VICTAULIC IS A REGISTERED TRADEMARK OF VICTAULIC COMPANY. © 2010 VICTAULIC COMPANY. ALL RIGHTS RESERVED. PRINTED IN THE USA.

I-799/79V

